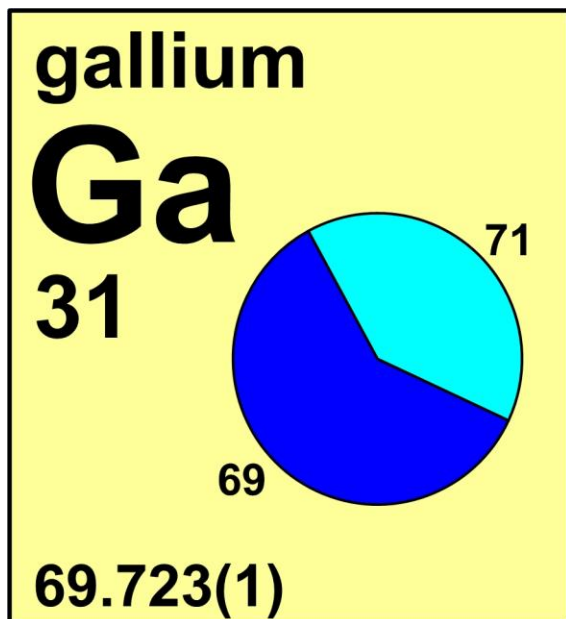
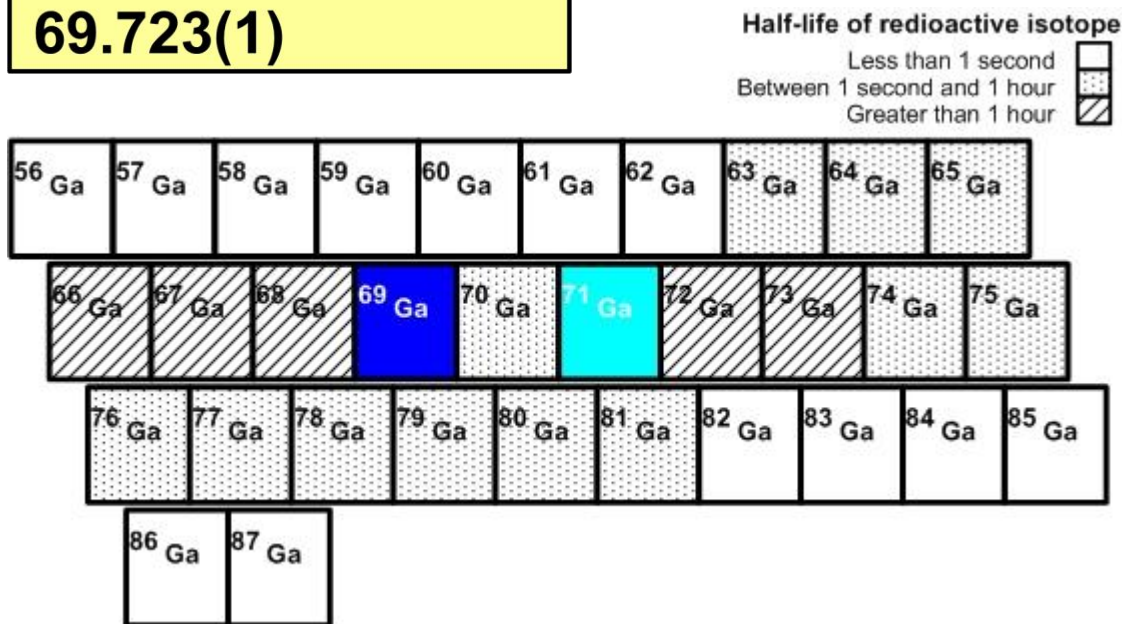


gallium



Stable isotope	Atomic mass*	Mole fraction
⁶⁹ Ga	68.925 5736	0.601 08
⁷¹ Ga	70.924 7013	0.398 92

* Atomic mass given in unified atomic mass units, u.



Important applications of stable and/or radioactive isotopes

Isotopes in medicine

- ⁶⁸Ga is a positron-emitting isotope that is used to produce high resolution imaging with positron emission tomography. Unlike ¹⁸F, which is most commonly used, ⁶⁸Ga is now commercially available and easily produced using a cost effective generator with the parent radionuclide ⁶⁸Ge. Once produced, ⁶⁸Ga easily couples to biomolecules, commonly peptides that target G-protein coupled receptors which are over expressed on human tumor cells. The labeled protein acts as a radiotracer for cancer diagnostics. PET images are often coupled with CT images to get a more complete picture of the body.

2. ^{68}Ga is viewed by the research and medical communities as an important emerging isotope for the development of new diagnostic PET tracers.
3. Radiopharmaceutical ^{67}Ga is a gamma-emitting isotope used in scintigraphy for medical imaging.

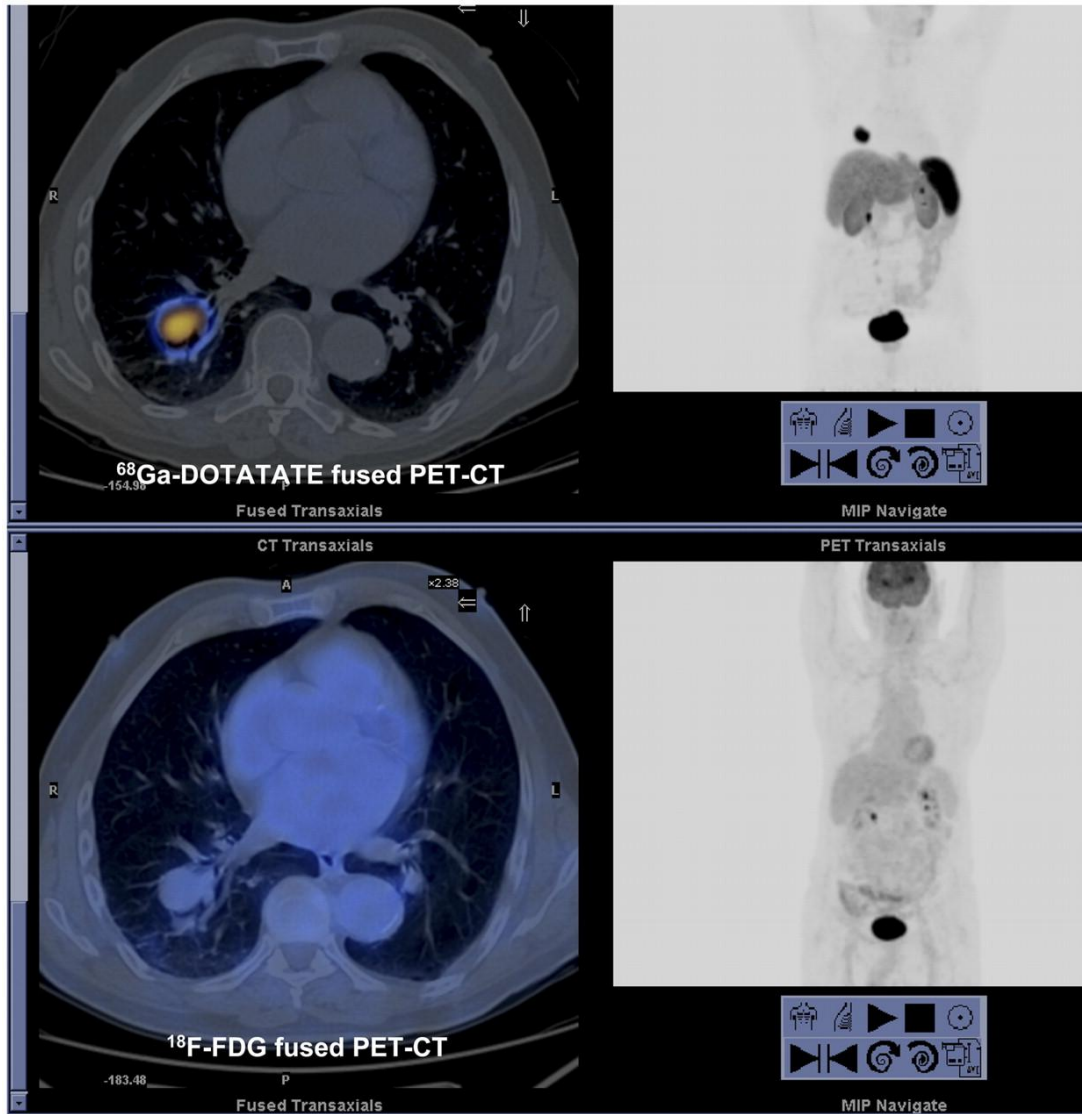


Figure 1: Fused PET/CT (left) and maximum-intensity-projection (right) images of 85-y-old man with typical bronchial carcinoid in right lower lobe. Tumor shows intense ^{68}Ga -DOTATATE uptake but has minimal avidity for ^{18}F -FDG.